

**Specification to replace existing Door & Frame on prototypical style housing units with  
Wide Jamb Door & Frame for Swinging Entry Doors  
At Various Tennessee Department of Correction Facilities**

The Tennessee Department of Correction has several 1990's era prototypically designed housing units at several locations across the State. Each entry door is a Left or Right Hand and has a southern steel 10120 or Brinks 5020 lockset.

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Remove the existing door, frame and lock from the Guild Entry Door. Reinstall a similarly designed detention grade wide jamb frame and door with security glazed vision panel and lock to be provided by the institution to electronically operate the door from Central Control.

**1.2 PERFORMANCE REQUIREMENTS**

- A. Detention Doors and Frames: Provide detention doors and frames that comply with Security Grade 1 according to the latest edition of ASTM F 1450, as determined by testing manufacturer's standard products representing those indicated for this Project.
- B. Locks: See Section 2.8
- C. Detention Glazing: See Section 2.1

**1.3 SUBMITTALS**

- A. Product Data: Include installation details, material descriptions, core descriptions, label compliance, fire-resistance rating and finish for each type of detention door and frame.
- B. Provide performance testing reports, which support the testing requirements (1.2.A above).
- C. Shop / Coordination Drawings: For detention doors and frames. Include conditions at openings, details of construction, dimension of profiles, and details of joints and connections. Show anchorage and accessories. Include fastener types, sizes and spacing. Identify each detention door and frame using same reference numbers for openings as those on Drawings. Show the following:
  - 1. Locations, dimensions and profiles of detention door hardware reinforcements.
  - 2. Locations and installation details of detention door hardware.
  - 3. Elevations of each detention door design type showing dimensions, locations of detention door hardware and preparations for power, signal and electrified control systems.
  - 4. Details of each detention frame type.
  - 5. Details of mortar boxes in detention frames for hardware and communication devices.
  - 6. Identify specific methods for retrofit, i.e., installation, frame anchorage and grout fill.

**1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: An authorized representative of detention door and frame manufacturer for installation of units required for this Project.

- B. Source Limitations: Obtain detention doors and frames through one source from a single manufacturer.
- C. Welding: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1, "Structural Welding Code--Steel."
  - 2. AWS D1.3, "Structural Welding Code--Sheet Steel."

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver detention doors and frames palletted, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
- B. Deliver detention frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Inspect detention doors and frames, on delivery, for damage. Minor damage may be repaired provided refinished items match new work and are approved by the Facility Manager; otherwise, remove and replace damaged items as directed.
- D. Store detention doors and frames under cover at building site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (100-mm) high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber.
  - 1. If wrappers on detention doors become wet, remove cartons immediately. Provide minimum 1/4-inch (6-mm) space between each stacked detention doors to permit air circulation.

#### 1.6 ACCEPTABLE MANUFACTURERS

- A. Security Hollow Metal Manufacturers: Unless pre-approved prior to bidding, provide products by one of the following:
  - 1. Habersham Metal Products Company, Inc.; Cornelia, GA
  - 2. Trussbilt, LLC; Vadnais Heights, MN
  - 3. Ceco Door Products / an Assa Abloy Group Company, Milan, TN
  - 4. Steward Steel, Inc., Sikeston, MO

### **PART 2 - PRODUCTS**

#### 2.1 DETENTION HOLLOW METAL DOORS

##### A. MATERIALS

- 1. Doors shall be constructed of commercial quality, level, cold-rolled steel conforming to ASTM A1008 / A1008M or hot rolled, pickled and oiled steel conforming to ASTM A1011 / A1011M. The steel shall be free of scale, pitting, coil breaks or other surface blemishes. The steel shall also be free of scale, pitting, buckles, waves or any other defects caused by the use of improperly leveled sheets.
- 2. Exterior Doors: Face sheets shall be 12 Ga., 0.093 in., 2.3 mm minimum thickness as indicated and shall have a zinc coating applied by the hot-dip process conforming to ASTM A 653/A 653M, Coating designation A60
- 3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

4. Security Fasteners: Operable only by tools produced for use on specific type of fastener by fastener manufacturer or other licensed fabricator. Drive system type, head style, material, and protective coating as required for assembly, installation, and strength, and as follows:
  1. Drive System Types: pinned Torx.
  2. Socket Flat Countersunk Head Fasteners:
    - a) Heat-treated alloy steel, ASTM F 835.
    - b) Stainless steel, ASTM F 879, Group 1 CW.
  3. Socket Button Head Fasteners:
    - a) Heat-treated alloy steel, ASTM F 835.
    - b) Stainless steel, ASTM F 879, Group 1 CW.
  4. Socket Head Cap Fasteners:
    - a) Heat-treated alloy steel, ASTM A 574.
    - b) Stainless steel, ASTM F 837, Group 1 CW.
  5. Protective Coatings for Heat-Treated Alloy Steel:
    - a) Zinc chromate, ASTM F 1135, Grade 3 or 4; for exterior applications and interior applications where indicated.
    - b) Zinc phosphate with oil, ASTM F 1137, Grade I, or black oxide, unless otherwise indicated.
  6. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a) Camcar Textron Inc.
    - b) Holo-Krome; a Danaher Corporation.
    - c) Safety Socket Screw Corporation.
    - d) Tamper-Pruf Screws, Inc.
5. Concealed Bolts: ASTM A 307, Grade A, unless otherwise indicated.
6. Post-installed Expansion Anchors in Concrete: With capability to sustain, without failure, a load equal to 4 times the load imposed, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
  - a. Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (0.005 mm) for Class SC 1 service condition (mild).
  - b. Corrosion Protection: Stainless-steel components complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Alloy Group 1 or 4) for bolts and nuts; ASTM A 666 or ASTM A 276, Type 304 or 316, for anchors.
  - c. Corrosion Protection: Components fabricated from nickel-copper-alloy rods complying with ASTM B 164 for UNS No. N04400 alloy.
7. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching detention frames of type indicated.
8. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, a load equal to 4 times the load imposed, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
9. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 (ASTM A 47M) malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.
10. Embedded Plate Anchors: Fabricated from mild steel shapes and plates, minimum 3/16 inch (4.8 mm) thick; with minimum 1/2-inch- (12.7-mm-) diameter headed studs welded to back of plate.

11. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
12. Detention Door Glazing. Provide Security Grade #2 glazing no less than 9/16" thick.
  - a. Opening to be no less than 100 square inches with a width not to exceed 5 inches.
  - b. No tinting of glazing is required.
  - c. Installed with stops from the exterior of the door leaving an interior finish without accessible materials and fasteners.
  - d. Installed vertically on the strike side of the door.
13. Grout: Field installed by General Contractor. Comply with ASTM C 476, with a slump of 4 inches for detention frames built into masonry; 8 to 11 inches for detention frames installed in concrete as measured according to ASTM C 143/C 143M.
14. Epoxy Filler: Bondo or other substitution acceptable to the Facility Manager.
15. Electrical Conduit:
  - a. Raceways: Circular raceways shall be 1" diameter (per plans) U.L. approved rigid steel conduit, intermediate metal conduit (IMC) or electrical metallic tubing (EMT), galvanized inside and outside.
  - b. Raceway Fittings: Fittings and couplings for conduit shall be galvanized or cadmium plated compatible with conduit materials. Fittings for rigid conduit and IMC shall be threaded. Fittings for EMT shall be compression type (set screws are not accepted).

## 2.2 DETENTION DOORS

- A. General: Provide flush-design detention doors, 2 inches thick, of seamless hollow construction, unless otherwise indicated. Construct detention doors with smooth, flush surfaces without visible joints or seams on exposed faces or stile edges.
  1. Visible joints or seams around glazed panel inserts are permitted.
  2. For single-acting swinging detention doors, bevel both vertical edges 1/8 inch in 2 inches.
- B. Metallic Core Construction: Provide the following core construction welded to both detention door faces:
  1. Steel-Stiffened Core: 0.042-inch- thick, steel vertical stiffeners extending full-door height, with vertical webs spaced not more than 4 inches apart, spot welded to face sheets a maximum of 3 inches o.c. Fill spaces between stiffeners with insulation of minimum 0.6-lb/cu. ft. density.
  2. Truss-Stiffened Core: 0.013-inch- thick steel, truncated triangular stiffeners extending between face sheets and for full height and width of door; with stiffeners welded to face sheets not more than 3 inches o.c. vertically and 2-3/4 inches horizontally. Fill spaces between stiffeners with insulation of minimum 0.6-lb/cu. ft. density.
- C. Vertical Edge Channels: 0.123-inch- thick, continuous steel channel extending full-door height at each vertical edge, with webs of channels flush with door edges; welded to top and bottom channels to create a fully welded perimeter channel.
- D. Top and Bottom Channels: 0.123-inch- thick metal channel spot welded, not more than 4 inches o.c., to face sheets.
  1. Reinforce tops and bottoms of detention doors with inverted horizontal channels of same material as face sheet so flanges of channels are even with bottom and top edges of face sheets.

2. Close top edge with 0.053-inch- thick closing channel of same material as face sheet; welded so webs of channels are flush with top door edges. Spot weld the closing channel in place no more than 4 inches o.c.
  3. Close bottom edge with 0.053-inch- thick closing channel of same material as face sheet; welded so webs of channels are flush with bottom door edges. Spot weld the closing channel in place no more than 4 inches o.c.
- E. Hardware Reinforcement: Fabricate reinforcing plates from same material as detention door face sheets to comply with the following minimum thicknesses:
1. Full-Mortise Stainless Steel Detention Hinges, 4 per door, 250 lb. rating with Security Stud: 12 Ga. 10" channel with 3/8" x 1" x 6" back up at each hinge.
  2. Strike Reinforcements: 10 Ga. thick.
  3. Lock Fronts, Concealed Holders, and Surface-Mounted Closers: 0.093 inch thick.
  4. All Other Surface-Mounted Hardware: 0.093 inch thick.
- F. Hardware Enclosures: Provide enclosures and junction boxes for electrically operated detention door hardware, interconnected with UL-approved, 3/4-inch- diameter (per plan) conduit and connectors.
1. Where indicated for installation of wiring, provide access plates to junction boxes, fabricated from same material and thickness as face sheet and fastened with at least 4 security fasteners spaced not more than 6 inches o.c.
  2. Surface mounted junction boxes are to be of solid construction without knockouts.
  3. Conduit to be installed utilizing 2-hole strap with security fasteners. Conduit installation to be anchored every 3 feet of the run and within one foot of junction box or corner.
- G. Exterior Steel Detention Door Face Sheets: Fabricated from metallic-coated steel sheets, and other metal components from hot- or cold-rolled steel sheets.
1. Security Grade 2: 0.093-inch- thick steel.

### 2.3 DETENTION FRAMES

- A. General: Fabricate detention frames of full-welded unit construction, with corners mitered, reinforced, and continuously welded full depth and width of detention frame.
1. Provide removable faces at jambs where embedment-type jamb anchors are required.
  2. Frames to be constructed and installed per attached drawings A1.0, A1.0A, A2.0, A2.0A.
- B. Exterior Steel Detention Frames: Fabricated from metallic-coated steel sheets, and other metal components from hot- or cold-rolled steel sheets.
1. Security Grade 2: 0.093-inch- thick steel.
- C. Hardware Reinforcement: Fabricate reinforcing plates from same material as detention frame to comply with the following minimum thicknesses:
1. Full Mortis Hinges and Pivots: 3/16" x full width of jamb x 10" in length. The top hinge shall be additionally reinforced with 3/16" formed angle welded both to hinge reinforcing and frame face.
  2. Strikes and Closers: 0.187 inch thick.
  3. Surface-Mounted Hardware: 12 ga. thick.
  4. Lock Pockets: 12 ga. thick at secure side, welded to face sheet. Provide 12 ga. thick, lock protection plate for attachment to lock pocket with security fasteners.
  5. Provide a key cylinder protection pipe extension on all lock cover plates for wide jamb electric locks. Provide a 3/16" steel pipe that extends 1/4" beyond the face of the key cylinder. Weld attach the 3" diameter pipe extension to the cover plate at four locations.

- D. Hardware Enclosures: Provide enclosures and junction boxes for electrically operated detention door hardware, interconnected with UL-approved, 3/4-inch- (per plan) diameter conduit and connectors.
1. Provide enclosures with access for conduit, tapped holes for hardware and internal fastener protection so fasteners will seat after frame is grouted full.
  2. Electrical access boxes will not be permitted except at hardware pockets or communication mortar boxes. Provide knockout at top and bottom of each box to accept conduit.
  3. Lock pockets for jamb mounted locks: Provide 0.123 inch (3.1 mm) thick steel enclosure with:
    - a. Surface mounted cover, minimum 10 ga. thick steel plate with uniform beveled edges on the side closest to the lock strike or frame rabbet, secured with a minimum of 8 flathead Torx security screws.
    - b. Secure lock to frame or pocket in accordance with lock manufacturer's recommendations for each lock type.
    - c. Provide concealed lock front preparation with frame rabbet cutout only to allow passage of latch bolt and deadbolt actuator. Lock front and case are not exposed.
    - d. Provide key access ports at locks keyed two sides or side opposite the door swing. Size key access port to accommodate standard mogul keys on a key ring.
  4. Provide conduit between electric lock pocket and door position switch and between back-to-back communication boxes where scheduled for each frame. All other conduit will be field installed.
- E. Head Reinforcement: Where installed in masonry, leave vertical mullions in detention frames open at top for grouting.
- F. Grout Holes: Provide grout holes in frames to be installed in existing wall or concrete wall openings. Weld 0.093-inch back reinforcing plate with 1-3/8" diameter hole to inside of frame. Flush cover plate, same gauge as frame, to be shipped loose for field installation after frame is grouted full. Weld cover plate to frame and grind smooth for a seamless finish
- G. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.
- H. Jamb Anchors: Weld jamb anchors to detention frames near hinges and directly opposite on strike jamb as required to secure detention frames to adjacent construction.
1. Number of Anchors: Provide jamb anchors at 16" o.c. per jamb plus the following:
    - a. Detention Door Frames: One additional anchor for each 16 inches or fraction thereof more than 40 inches in height.
  2. Masonry Type: Adjustable, corrugated or perforated, strap-and-stirrup anchors to suit detention frame size; formed of same material and thickness as detention frame; with strap not less than 2 inches wide by 10 inches long with hole in strap for vertical wall reinforcing.
  3. Embedment-Masonry Type for Precast Concrete and Prefabricated Masonry Openings: 0.188-inch-thick by 2-by-2-by-4-inch- long steel angles welded to detention frame with 1-inch- long welds at each end of angle.
  4. Embedded Anchors: Consisting of 0.188-inch-thick by 4-inch-wide by 6-inch- long steel plates with 0.188-inch-thick by 2-by-2-by-4-inch- long, steel-angle anchors welded to steel plates at locations to match angles welded to detention frame. For each plate, provide 2 wall anchors consisting of 1/2-inch- diameter steel bar 10 inches long with 2-inch, 90-degree turn down on ends.
  5. Post installed Expansion Anchors for In-Place Concrete or Masonry: Minimum 1/2-inch-diameter concealed bolts with expansion shields or inserts. Provide conduit spacer from detention frame to wall, welded to detention frame. Reinforce detention frames at anchor locations.

- I. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, formed of same material and thickness as detention frame, and as follows:
  - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners, welded to bottom of jambs and mullions with at least four spot welds per anchor.
  - 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment, welded to jambs and mullions with at least 4 spot welds per anchor. Terminate bottom of detention frames at finish floor surface.
- J. Grout Guards: Provide grout guards of same material as detention frame, welded to detention frame at back of hardware cutouts and glazing-stop screw and silencer preparations to close off interior of openings and prevent mortar or other materials from obstructing hardware operation or installation.

## 2.4 THRESHOLD

- A. Provide a threshold of steel construction securely anchored to the floor and adjacent structure.

## 2.5 STOPS AND MOLDINGS

- A. Loose glazing stops shall be pressed steel angles, no less than 1 ¼" X 1 ¼" X 10 gauge.
  - 1. Angle tops shall be butt and notch and tight fitting at the corner joints, and secured in place with 1/4-28 special hardened tamperproof button head Torx security screws spaced 8" o.c. maximum and not more than 2 inches from each corner.
  - 2. The frame underneath the glazing stops and the inside of the glazing stop shall be chemically treated for maximum paint adhesion and painted with a rust-inhibitive primer prior to installation in the frame.
  - 3. Coordinate rabbet width between fixed and removable stops with type of glass installed.

## 2.7 HINGES

- A. Institutional Hinges:
  - 1. Acceptable products; subject to compliance with specified requirements:
 

<u>Manufacturer</u>	<u>Model No.</u>
Airteq	604FMCS
Brink	4 ½ SRS
Brookfield	I-400-US32D
Folger Adam	4-1/2FM-ICS×US32D
Northwest	NW 645FMST
Innovative	745 FM SSC ST
Southern Steel	204FMSS
  - 2. Characteristics:
    - a. Type: Full mortise, detention strength, three knuckle anti-friction bearing hinges with security studs for security hollow metal doors and frames; complying with ANSI A156.1; Grade 1 and ASTM F1450.
    - b. Material: Investment cast stainless steel.
    - c. Hinge tips and pins: Hospital type sloping barrel tips with concealed non-removable hinge pins. Provide hinge tips either continuous solid cast construction enclosing spring loaded hinge pin, or welded tips with hinge pin secured in place with permanent concealed hardened cross pins. Set screws are not permitted for securing hinge pins.
    - d. Security studs: Integral cast shear resistant studs positioned on back of each hinge leaf.
    - e. Size: 4-1/2" (114 mm) length by 4-1/2" (114 mm) width.
    - f. Fasteners: Furnish flathead tamper-resistant (Torx Plus®) security screws with each hinge.

3. Quantities: Provide minimum three hinges per door leaf up to 3'-0" (915 mm) wide or 7'-0" (2.1 m) high. Add one additional hinge for each door leaf greater than 3'-0" (915 mm) wide or one additional hinge for each 2 feet (610 mm) or fraction thereof exceeding 7'-0" (2.1 m) high. If the finished door weight meets or exceeds 300 pounds, provide minimum four hinges per door leaf. Quantities indicated in hardware schedule sets are minimum; provide additional hinges for larger door leaves as specified.

#### 2.14 DOOR PULLS:

- A. Recessed, Flush mounted door pulls for interior and exterior of the door.
- B. Door should be mounted to allow ease of door opening and closing with recessed pull.

#### 2.16 SECURITY HEAD SCREWS

- A. Acceptable manufacturers; subject to compliance with specified requirements:  
Sentry Security Fasteners, Inc.  
Tamperproof Screw Co., Inc.  
Tamper-Pruf Screws, Inc.
- A. Tamper-resistant security screws:
  1. Design: Tamper-resistant screw with heads having a deep five lobe recess with a solid post formed in the center based on Camcar/Div. Textron Inc., Torx Plus® Drive System requiring a special mated driver to install or remove screw. Provide fasteners and tools produced by a Camcar licensed manufacturer.
  2. Types:
    - a. Flathead Torx Plus® machine screws: Provide where countersinking is required. Size flathead screws to match countersunk holes to provide a proper fitted installation with heads seated flush and aligned with adjacent surfaces.
    - b. Button-head Torx Plus® machine screws: Provide where no countersinking is required.
  3. Materials and Finishes: Steel or stainless steel base metal for screws as required for hardware finishes specified; except provide stainless steel screws where installed at exterior or wet locations. Finish screws to match hardware finish of item fastened. Maintain Camcar specified Torx Plus screw recess clear dimensions and prevent excessive coating thicknesses from entering and fouling those recesses. Where finishes cannot be matched, provide specified screws with satin stainless steel finish (US32D).
  4. Drivers: Provide quantity of complete driver sets as specified in Part 1 "Spare Parts List", for use with specified screws. Design driver to insert substantially into recesses of screw heads to eliminate drive tool slippage. Deliver drivers to Owner with specified spare parts for maintenance use.

### **PART 3 – EXECUTION**

#### 3.1 EXAMINATION

1. Prepare substrates, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of detention doors and frames.
2. Examine roughing-in for embedded and built-in anchors to verify actual locations of detention frame connections before detention frame installation.
3. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of detention doors and frames.



- K. Install each anchor installation before installing detention frame to verify that anchor installations comply with requirements. Prepare inspection reports.
  - 1. Remove and replace anchors where inspections indicate that they do not comply with specified requirements. Reinspect after repairs or replacements are made.
  - 2. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.
- L. Verify locations of detention doors and frames with those indicated on Coordination Drawings.
- M. For material whose orientation is critical for its performance as a ballistic barrier, verify installation orientation.
- N. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Prior to installation and with spreaders removed, adjust detention frames for squareness, alignment, twist, and plumb to the following tolerances:
  - 1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb and perpendicular to frame head.
  - 2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of face.
  - 3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of door rabbet.
  - 4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.

### 3.3 FABRICATION

- A. Fabricate detention doors and frames rigid, neat in appearance, and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Weld exposed joints continuously; grind, fill, dress, and make smooth, flush, and invisible. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
  - 1. Exterior Detention Doors: Provide weep-hole openings in bottom of detention doors to permit entrapped moisture to escape. Seal joints in top edges of detention doors against water penetration.
  - 2. Fabricate detention doors and frames to comply with manufacturing tolerances indicated in HMMA 863.
- B. Continuously weld detention frame corners, with contact edges closed tight and faces mitered.
- C. Fabricate multiple-opening detention frames with mullions that have closed tubular shapes and with no visible seams or joints.
- D. Exposed Fasteners: Provide countersunk security fasteners for exposed screws and bolts, unless otherwise indicated.
- E. Hardware Preparation: Factory-prepare detention doors and frames to receive mortised hardware, including cutouts, reinforcement, mortising, drilling, and tapping, according to final door hardware

schedule and templates provided by detention door hardware supplier. Comply with applicable requirements in DHI A115 Series for detention door and frame preparation for door hardware.

1. Reinforce detention doors and frames to receive surface-mounted door hardware. Drilling and tapping may be done at Project site.
2. Locate door hardware as indicated or, if not indicated, according to HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames."

- F. Factory-cut openings in detention doors for accessories.
- G. Welding: Weld components to comply with referenced AWS standard. Weld before finishing components to greatest extent possible. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- H. Glazing Channels: Provide minimum clearances for thickness and type of glass indicated, according to GANA's "Glazing Manual."
- I. Security Fasteners: Fabricate detention doors and frames using security fasteners with head style appropriate for fabrication requirements, strength, and finish of adjacent materials, except that a maximum of two different sets of tools shall be required to operate security fasteners for Project. Provide stainless-steel security fasteners in stainless-steel materials.

### 3.5 FIELD QUALITY CONTROL

- A. Inspect installed products to verify compliance with requirements. Prepare inspection reports and indicate compliance with and deviations from the Contract Documents.
- B. Remove and replace detention work where inspections indicate that work does not comply with specified requirements.
- C. Perform additional inspections to determine compliance of replaced or additional work. Prepare inspection reports.
- D. Prepare field quality-control certification that states installed products and their installation comply with requirements in the Contract Documents.

### 3.6 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items just before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including detention doors and frames that are warped, bowed, or otherwise unacceptable.
- B. Clean grout and other bonding material off detention doors and frames immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
1. After finishing smooth field welds, apply air-drying primer.
- D. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

### 3.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish detention doors and frames after assembly.

### 3.8 METALLIC-COATED STEEL FINISHES

- A. Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas and apply galvanizing repair paint specified below to comply with ASTM A 780.
  - 1. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in steel, complying with SSPC-Paint 20.
- B. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils.
  - 1. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, lead- and chromate-free primer complying with ANSI A224.1 acceptance criteria; recommended by primer manufacturer for zinc-coated steel; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure. All new doors and frames shall be shipped primed.

### 3.9 PAINTING

- A. Paint new doors and frames in the field with two coats alkyd paint per manufacturer's instructions after touching up welds in field.
- B. Manufacturers
  - 1. Benjamin Moore
  - 2. Pittsburgh Paints
  - 3. Sherwin-Williams
- B. Material Compatibility: Provide primers and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- C. VOC Classification: Provide coating materials, including primers, undercoats, and finish-coat materials, that have a VOC classification of 450 g/l or less.
- D. Color: Match existing.
- E. Remove or protect adjacent or attached accessories, etc.
- F. Install in accordance with manufacturer's instructions. Provide surface with uniform appearance, free of drips, runs, sags and other imperfections.
- G. Apply a minimum of two coats.

### 3.10 STEEL SHEET FINISHES

- A. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- B. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils.
  - 1. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, corrosion-inhibiting, lead- and chromate-free, universal primer complying with ANSI A224.1 acceptance criteria; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure.

### 3.11 STAINLESS STEEL FINISHES

- A. General: Remove tool and die marks and stretch lines or blend into finish. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
  - 1. Bright, Directional Polish: No. 4 finish.
- B. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

END OF SECTION